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(54) Method and system for multi-processor FFT/IFFT with minimum inter-processor data communication

(57) The present invention provides a scalable method for implementing FFT/IFFT computations in multiprocessor architectures that provides improved throughput by eliminating the need for inter-processor communication after the computation of the first " $\log_2 P$ " stages for an implementation using "P" processing elements, comprising computing each butterfly of the first " $\log_2 P$ " stages on either a single processor or each of the "P" processors simultaneously and distributing the computation of the butterflies in all the subsequent stages among the "P"

processors such that each chain of cascaded butterflies consisting of those butterflies that have inputs and outputs connected together, are processed by the same processor.

The invention also provides a system for obtaining scalable implementation of FFT/IFFT computations in multiprocessor architectures that provides improved throughput by eliminating the need for inter-processor communication after the computation of the first " $\log_2 P$ " stages for an implementation using "P" processing elements.

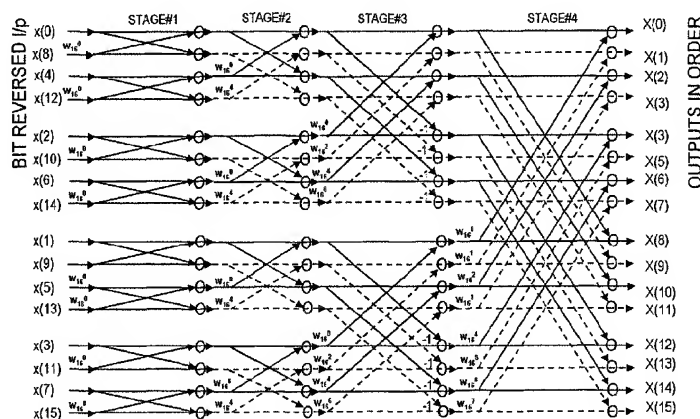


Fig.2

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EUROPEAN SEARCH REPORT

Application Number
EP 04 10 0617

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Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
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The present search report has been drawn up for all claims			
Place of search Berlin		Date of completion of the search 23 December 2005	Examiner Domingo Vecchioni, M
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document	

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**ANNEX TO THE EUROPEAN SEARCH REPORT
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EP 04 10 0617

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23-12-2005

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For more details about this annex : see Official Journal of the European Patent Office, No. 12/82